



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of: Kucera, et al.
Serial No.: 09/627,312
Filed: July 27, 2000

Docket No.: IR-2800(NBA)
Group Art Unit: 1773
Examiner: M. R. Jackson

For: "Two-Part Aqueous Metal Protection Treatment"

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GROUP 1700

DECLARATION UNDER 37 CFR 1.132
Unequivocal Statement of Attribution of prior patent publications to
Declarant

Assistant Commissioner of Patents
Washington, DC 20231

Dear Sir:

The purpose of the following declaration pursuant to 37 CFR 1.132 is to overcome rejections under 35 U.S.C. §§ 102 by disqualifying WO 99/37722 and WO 99/37713 as prior art against the above captioned pending application. Disqualification is on unequivocal grounds averred by the undersigned as inventor of the subject matter disclosed in WO/9937722 and WO 99/37713.

I, the undersigned, Helmut W. Kucera, declare the following:

- (1) that I am the inventor of pending App. No. 09/627,312 listed above, which has been assigned to Lord Corporation by assignment recorded on 10/23/2000 in the U.S. Patent Office on reel no. 011287 and frame number 0695, and have not assigned said patent to any other person; and
- (2) That the attached record of invention, signed by me and witnessed, establishes that my conception and reduction to

practice occurred prior to the priority dates listed in WO
99/37722 and WO 99/37713 and therefore I am the inventor.

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

Signed: Helmut W. Kucera

Helmut W. Kucera

Dated: 3/26/03

INVENTION RECORD FORM

Page 1 of 6Patent Department Filing No. IR- [REDACTED]

Invention Title: Autodeposited Metal Treatment

Inventor(s):	1)	Kucera	Helmut	W
		Last	First	Middle
	2)	.	.	.
		Last	First	Middle
	3)			
		Last	First	Middle

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Invention Disclosure Prepared By: Helmut W Kucera

Date Of This Disclosure: [REDACTED]

Invention First Disclosed To: Rebecca Cowles

Date First Disclosed: [REDACTED]

Signatures:

Inventor:	<u>Helmut Kucera</u>	Date:	<u>[REDACTED]</u>	Witnessed and Understood:	<u>Pat G. [Signature]</u>	Date:	<u>[REDACTED]</u>
Inventor:	_____	Date:	_____	Witnessed and Understood:	<u>Rebecca J. Cowles</u>	Date:	<u>[REDACTED]</u>
Inventor:	_____	Date:	_____	Witnessed and Understood:	<u>Brian P. Carney</u>	Date:	<u>[REDACTED]</u>
Approval:	_____	Date:	_____				

INVENTION RECORD FORM

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Details Regarding Usage, Demonstration or Sale:

Invention been either offered for sale or actually sold?yes no X

Is an offer contemplated?

yes no X

If yes to either, when and to whom?

Invention been demonstrated to anyone outside Lord?

yes X no

Is a demonstration contemplated?

yes no If yes to either, when, where, and to whom? [REDACTED]

Invention described outside Lord (Paper, Speech, Letter, Proposal)?

yes no X

Is a description contemplated?

yes no X

If yes to either, when, where, and to whom?

Invention use outside of Lord (testing of prototypes)?

yes no X

Is a public use contemplated?

yes no X

If yes to either, when and where?

Government Contracts or Subcontract Support:

This invention was not conceived or reduced to practice in the performance of a Government contract or subcontract and was not done upon the understanding in writing that a contract or subcontract would be awarded.

Prior Documentation of Invention:

[1] Notebook 7671, 7789

Physical Embodiment and/or Testing of the Invention:

Has a prototype or sample that embodies the invention been manufactured, synthesized or formulated?

yes X no

Signatures:

Inventor:

[Signature]

Date:

[REDACTED]Witnessed and
Understood::[Signature]

Date:

[REDACTED]

Inventor:

Date:

 Witnessed and
Understood::[Signature]

Date:

[REDACTED]

Inventor:

Date:

 Witnessed and
Understood::[Signature]

Date:

[REDACTED]

Approval:

INVENTION RECORD FORM

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If yes, give date of manufacture, synthesis, or formulation and date of testing or analysis:

Beginning on July [REDACTED] to present, these metal treatments have been prepared and evaluated in our lab.

Details of testing, manufacture, of formulation of prototypes or samples:

See appended lab notebook pages for details

General Statement of the Invention:

An autodepositable, single coat, no rinse metal treatment for electrochemically active metals such as steel, to be used in combination with phenolic based primers or coatings

Utility:

A simplified metal treatment to replace phosphatizing in specific applications. Although initial work was done in the context of a minimum surface prep rubber-to-metal primer system, this technology could find broad use in other applications where phosphatizing, grit blasting or other metal preparation steps are used with the aim of improving adhesion and improving corrosion resistance.

Signatures:

Inventor:

Date::

Witnessed and
Understood::

Date:

Inventor:

Date::

Witnessed and
Understood::

Date:

Inventor:

Date::

Witnessed and
Understood::

Date: _____

Approval::

Form #998, Rev. F 4/18/95

INVENTION RECORD FORM

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Patent Department Filing No. IR- [REDACTED]

Related Art:

1. Modern Paint and Coatings April 1984, p 49 (Article on Phosphatizing)
2. US 5,322,870
3. Z-169 "Characterization of Autophoretic Rubber-to-Metal Primer Systems" IPR No: 1. Athena Theodoroakis
4. WO 95/23038
5. "Modern Metals" Sept 1988, p38 "Water based coating challenges electrodeposition" by V. M. Casidy
6. "Product Finishing" July issue

Detailed Description of the Invention:

Phosphatizing is a well established process for preparing many metals, particularly steel for subsequent coating or adhesive bonding operations¹ This is a complex, multistep process for converting a reactive steel surface to a complex phosphate coated surface. Such a surface not only provides a more consistent, well adhering base for a subsequent coating or adhesive operations, but also enhances the corrosion resistance of the final construction.

Thus phosphatized surfaces are the preferred substrates for R-M bonding. In combination with our phenolic based primers, such constructions have a history of excellent corrosion resistance, much superior to the primers alone on unphosphatized metal.

The drawback of this process is the complexity of the multistep phosphatizing process, which has to be closely monitored, and which can generate considerable waste products in the form of sludge¹.

Signatures:

Inventor:

atures: Belmont, Ruden

Date::

Witnessed and
Understood::

Pat G. Green

Date:

[REDACTED]

Inventor:

Date::

17

Witnessed and
Understood::

Rebecca L. Cowles

Date: _____

Approval::

Witnessed and
Understood::

Dr. F. C. Brown

Date:

~~_____~~

INVENTION RECORD FORM

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This invention is a much simplified metal treatment consisting of a combination of the novel phenolic novolac dispersions disclosed in IR-2485 (CE), and phosphoric acid, applied directly on degreased only metal.

Select phenolic novolacs of this invention are infinitely water dilutable and have high acid tolerance, which allow for low solids, high phosphoric acid formulations which have shown the most promise for this application.

Such formulations, when dip applied onto an electrochemically reactive metal such as steel, have shown an unusual property we call “autodeposition”. This process, similar in concept to Henkels “Autophoretic” coatings, deposits a very uniform, self limiting layer of the metal treatment as an aqueous gell.

The basis for this deposition is the reaction of the phosphoric acid with the metal to form iron ions which appears to cause the phenolic resin/phosphoric acid mixture to deposit on the metal a self limiting, very uniform, gellatinous, highly acidic wet film.

Subsequently, accelerated by further heating, the phosphoric acid in this water-gel is believed to further convert the surface to iron phosphate forming an interpenetrating network with the chelating phenolic resins of the composition. Once the film has dried, this electrochemical reaction is believed to stop.

It has been found that the same chemistry appears to occur when the metal treatment is spray applied from dilute aqueous systems onto hot metal.

Optionally, flexibilizing polymers can be incorporated into these compositions, as well as other beneficial metal chelators or corrosion inhibitors. Since this metal treatment does not contain any formaldehyde curative (latent or otherwise) for the phenolic component, it is typically used in combination with a phenolic coating/primer which provides the necessary curatives by diffusion into the metal treatment during the cure of the coating/primer.

Signatures:

Inventor:

res: *Belmont & Kucera*

Date::



Witnessed and

Understood::

Pat C. Lee

Date::



Inventor:

Date::

Witnessed and

Understood::

Rebecca J. Cowles

Date::

[REDACTED]

Inventor:

Date::

Witnessed and

Understood::

Don P. Cherry

Date:

[REDACTED]

Approval::

INVENTION RECORD FORM

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Patent Department Filing No. IR- [REDACTED]

This combination of metal treatment and a phenolic coating/primer has been shown to be capable of providing enhanced corrosion protection similar to the multistep phosphatizing process both under bonded areas or of exposed coatings.

A second benefit of this metal treatment is that it can activate a metal surface towards autodeposition of a coating or primer based on the novel phenolic dispersions IR-2487 (CE). Such an autodeposition step enhances the control of the primer/coating deposition by substantially uncoupling the deposition of the coating/primer from its rheology.

Although the metal treatment is typically applied to degreased only steel, such a two step process still represents a substantial simplification of the conventional phosphatizing process.

Signatures:

Inventor:

es: *Robert H. Lee*

Date::



Witnessed and
Understood::

Pat A. Wm

Date:

Inventor:

Date::

Witnessed and
Understood::

Rebecca J. Coulter

Date:

Inventor:

Date::

Witnessed and
Understood::

Alm. F. Arnesen

Date:

